

Claims :

1 A precipitated silica, characterized by

BET surface area 150 - 400 m<sup>2</sup>/g

5 CTAB surface area 140 - 350 m<sup>2</sup>/g

Al<sub>2</sub>O<sub>3</sub> content 0.2 - 5 % by weight.

2. The precipitated silica as claimed in Claim 1,

characterized in that the precipitated silicas have a DBP absorption of 180 to 320 g/100 g.

3. The precipitated silica as claimed in Claim 1 or 2,

characterized in that the precipitated silicas have a ratio of BET/CTAB surface areas of 1.0 to 1.6.

4. The precipitated silica as claimed in any one of Claims 1 to 3,

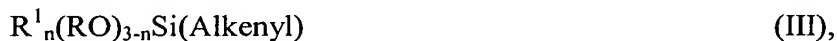
characterized in that the precipitated silicas have a modified Sears number V<sub>2</sub> of 5 to 35 ml/5 g.

5. The precipitated silica as claimed in Claims 1 to 4,

characterized in that its surface is modified with organosilanes of the formulae



or



with the following meanings

B: -SCN, -SH, -SC(O)CH<sub>3</sub>, -SC(O)(CH<sub>2</sub>)<sub>6</sub>CH<sub>3</sub>, -Cl, -NH<sub>2</sub>, -OC(O)CHCH<sub>2</sub>,  
-OC(O)C(CH<sub>3</sub>)CH<sub>2</sub> (if q = 1), or -S<sub>x</sub>- (if q = 2),

R and R<sup>1</sup>: an aliphatic, olefinic, aromatic or aryl aromatic radical with 2 to 30 C atoms,  
which can optionally be substituted by the following groups: hydroxy, amino,

alcoholate, cyanide, thiocyanide, halogen, sulfonic acid, sulfonic acid ester, thiol, benzoic acid, benzoic acid ester, carbonic acid, carbonic acid ester, acrylate, methacrylate, organosilane radical, where R and R<sup>1</sup> can have an identical or different meaning or substitution,

- 5 n: 0; 1 or 2,  
 alk: a divalent unbranched or branched hydrocarbon radical with 1 to 6 carbon atoms,  
 m: 0 or 1,  
 ar: an aryl radical with 6 to 12 C atoms, preferably 6 C atoms, which can be substituted by the following groups: hydroxy, amino, alcoholate, cyanide,  
 10 thiocyanide, halogen, sulfonic acid, sulfonic acid ester, thiol, benzoic acid, benzoic acid ester, carbonic acid, carbonic acid ester, organosilane radical,  
 p: 0 or 1 with the proviso that p and n do not simultaneously mean 0,  
 x: a number from 2 to 8,  
 r: 1, 2 or 3, with the proviso that  $r + n + m + p = 4$ ,  
 15 alkyl: a monovalent unbranched or branched unsaturated hydrocarbon radical with 1 to 20 carbon atoms, preferably 2 to 8 carbon atoms,  
 alkenyl: a monovalent unbranched or branched unsaturated hydrocarbon radical with 2 to 20 carbon atoms, preferably 2 to 8 carbon atoms.

20 6. A process for manufacture of a precipitated silica with

BET surface area in the range 150 - 400 m<sup>2</sup>/g  
 CTAB surface area in the range 140 - 350 m<sup>2</sup>/g  
 Al<sub>2</sub>O<sub>3</sub> content in the range 0.2 - 5 % by weight,  
 where

- 25 a) an aqueous water glass solution is filled into a vessel  
 b) water glass and acidifier are metered into this vessel with stirring at 55 - 95 °C for 30 - 100 minutes simultaneously,  
 c) acidified with acidifier to a pH value of approx. 5 and  
 d) filtered and dried,  
 30 on the condition that aluminum compounds are added in steps b) and/or c).

7. The process as claimed in Claim 6,  
characterized in that the constituents supplied in steps b) and c) each have an identical or  
different concentration.

5 8. The process as claimed in Claim 6 or 7,  
characterized in that the constituents supplied in steps b) and c) each have an identical or  
different feed rate.

9. The process as claimed in Claim 8,  
10 characterized in that with identical concentration of the constituents in steps b) and c) the  
feed rate in step c) is 110 to 200 % of the feed rate in step b).

10. The process as claimed in Claim 8,  
characterized in that with identical concentration of the constituents in steps b) and c) the  
15 feed rates in step c) is 50 to 100 % of the feed rate in step b).

11. The process as claimed in Claim 7 to 10,  
characterized in that drying is undertaken by spin-flash, spray nozzle dryer or spray drying  
and/or granulation with/without roller compactor.

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12. The process as claimed in any one of Claims 7 to 11,  
characterized in that the precipitated silicas are modified with organosilanes of the  
formulae I to III in mixtures of 0.5 to 50 parts, relative to 100 parts precipitated silica, in  
particular 1 to 15 parts, relative to 100 parts precipitated silica, whereby reaction between  
25 precipitated silica and organosilane is carried out during production of the mixture (in  
situ) or outside of production by spraying and subsequent tempering of the mixture, by  
mixing of the organosilane and the silica suspension with subsequent drying and  
tempering.

30 13. Vulcanizable rubber mixtures and vulcanizates, containing the precipitated silica as  
claimed in any one of Claims 1 to 6.

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14. Tires, containing precipitated silica as claimed in any one of Claims 1 to 6.

15. Use of silica as claimed in any one of Claims 1 to 6 in battery separators, anti-blocking  
5 agents, matting agents in paints, paper coatings or defoamers, in seals, keypads, conveyor  
belts and window seals.

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